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# The Reading Ability of College Students

Nettie Harrison

*Western Kentucky University*

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THE READING ABILITY OF COLLEGE STUDENTS

BY

NETTIE HARRISON

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF ARTS

WESTERN KENTUCKY STATE TEACHERS COLLEGE

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Approved:-

Major Professor  
and  
Department of Education  
Minor Professor, English  
Graduate Committee

Lee Francis Jones  
Carl D. Moore  
St. G. Wise Ch

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## CHAPTER I

### INTRODUCTION

Perhaps more scientific investigations have been made in the field of reading than in any other phase of education. Major emphasis has been placed, as it should be, on reading in the elementary grades because it is in those grades that reading skills and habits are formed which last throughout life.

However, in recent years much attention is being given to the reading ability of students on the college level, with special interest in trying to improve the reading ability of the inefficient readers and to teach students how to study effectively in order to reduce the number of failures in college, because educators everywhere realize that scholastic success depends to a great extent on the ability of the student to read intelligently.

The increased interest in reading during recent years is illustrated by a table given in a study made by Eurich<sup>1</sup> in 1931. This table shows the number of scientific studies of reading made in England and America since 1880. Of the total number of investigations reported from 1880 to 1930, 30 per cent were made in the four years from 1921 to 1925. During the following four years from 1926 to 1930, 47 per cent of the total number were published. This tremendous increase in the number of studies made is merely a reflection of the increased interest in the general problem of reading which is due to the fact that reading is considered fundamental not only to scholastic success but to practical efficiency as well.

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<sup>1</sup>A. C. Eurich, The Reading Abilities of College Students (Minneapolis, University of Minnesota Press, 1931), p. 6.



The importance of being able to read rapidly and intelligently may be summed up by giving a few of the opinions of some of the outstanding educators of the country and by summarizing the results of some of the investigations made on the subject.

Broom<sup>2</sup> states that training in the schools places greatest emphasis upon knowledge and that the prime vehicle for imparting this knowledge is the textbook; therefore, the ability to comprehend the materials in the textbook seems to be the crucial element in education.

Dickinson<sup>3</sup> says that reading is considered the most important subject that a child encounters in the curriculum because it is the means of furnishing him with that instrument which is to be used by him throughout school life. He says that since reading is the most important of the fundamental subjects, the pupil's ability to grasp and interpret thought from the printed page qualifies the measure of his success or failure in all other subjects.

In discussing the significance of reading in relation to success in school, McKee<sup>4</sup> says that

"...most of what is to be taught is presented in books and other written materials to be read by the pupil. Apparently a very large share of what the child is supposed to learn...in all content subjects is to be acquired by means of intelligent reading... Thus in terms of school work

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<sup>2</sup>M. E. Broom, An Analysis of Certain Factors Affecting Reading Achievement at the College Level, unpublished Doctorate Dissertation, University of Southern California, Los Angeles, 1931, p. 6.

<sup>3</sup>C. E. Dickinson, "A Study of the Relationship of Reading Ability to Scholastic Achievement," School Review, Vol. 35 (October, 1925), p. 617.

<sup>4</sup>Paul McKee, Reading and Literature in the Elementary School (Boston, Houghton Mifflin Co., 1934), p. 36.

reading is a tool by which the pupil is enabled to learn much that the school has to offer... The pupil who cannot read well is blocked in learning. The pupil who can read well possesses important learning equipment..."

Garrison and Garrison<sup>5</sup> explain that

"reading is not taught for its own sake, but because it is a means to the realization of the larger aims of education in general and to the more specific aims of the various subjects in particular which contribute to the larger aims."

Haggerty,<sup>6</sup> in his preface to Eurich's study of the reading ability of college students, says,

"The ability to read English prose with ease and understanding is one mark of an educated American... Indeed, a reading mastery of English prose is probably the most important single outcome of American schooling.

"Recognizing this fact, the student of educational achievement is chagrined to find how little genuine mastery is obtained by the average college student. Ignorance of the meanings of words, unfamiliarity with English idioms, incapacity to penetrate the meaning of complex sentences, or to grasp the thought of a paragraph, lays upon the college freshman a handicap in study that in many cases is well-nigh insurmountable. To be sure, some students read well, but the distressing thing is the range of competence, which brings the average much below a desirable college standard."

As to the standard achievement which a college student should reach, Moore<sup>7</sup> says that

"...it is commonly assumed that a student's absorbing capacity for non-technical reading should be at the rate of from forty to fifty pages per hour. The experience of many teachers of freshmen indicates that such a pace is necessary in order that students carry a respectable course-load, and acquire the foundations for future work in any particular branch of knowledge."

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<sup>5</sup>S. C. Garrison and K. C. Garrison, Psychology of Elementary School Subjects (Richmond, Johnson Pub. Co., 1929), p. 272.

<sup>6</sup>E. M. Haggerty, (in Eurich, A. C., Reading Abilities of College Students, University of Minnesota Press, 1931), p. v.

<sup>7</sup>Herbert Moore, "Diagnosing and Caring for the Reading Difficulties of College Freshmen," Journal of Psychology, Vol. I (First Half, 1935-1936), p. 139.



This same authority<sup>8</sup> says that the inability of freshmen to read and digest the average classroom assignment is one of the major problems of the student-teacher relationship.

Broom,<sup>9</sup> in a study made for the purpose of determining how much college study involves silent reading found that, according to the estimates of college students and faculty members, about 60 per cent of the time spent in study involves silent reading, about 26 per cent of the time is spent in laboratory work, and about 14 per cent is spent in pure reasoning. This indicates that reading ability for college study is very significant.

In a study made to determine how well college students can read, Book<sup>10</sup> gave an assignment in an English class to see how much of the material could be mastered in a given time. It was found that only 27 per cent of the freshman boys and 39 per cent of the freshman girls could give the title of the chapter they had studied in preparation for the test, or could formulate in any terms the chief problem discussed by the author read. The median score or per cent of efficiency was only 34 per cent for the boys and 43 per cent for the girls. The poorest readers among this group were able to note and remember only 3 per cent of the points which the author had made, while the best readers among the boys got 85 per cent of the points in their reading and the best among the girls got 94 per cent.

In the same report, Book<sup>11</sup> says that it has been estimated that college students get 90 per cent of their facts from printed material. All agree

<sup>8</sup>Loc. cit.

<sup>9</sup>M. E. Broom, "Importance of Reading for College Study," Educational Administration and Supervision, Vol. 20 (March, 1934), p. 190.

<sup>10</sup>W. F. Book, "How Well College Students Can Read," School and Society, Vol. 26 (August 20, 1927), p. 243.

<sup>11</sup>Ibid., p. 242.

that most of the information secured in college comes directly or indirectly through books; therefore, a student's success in every subject studied depends very largely upon his ability to read or get facts accurately and quickly from books.

That extreme individual differences exist in the reading ability of college students was shown by a study made by Anderson.<sup>12</sup> He found that in a given time, the best reader in the group he studied could read from four to six times as much as the poorest reader, and that the average performance of the members in the highest fourth of the group was two and a half times that of the lowest fourth. In other words, a two-hour assignment for the average member of the fourth quartile is a five-hour assignment for the average member of the first quartile. He found that the best readers were taxed to about 50 per cent of their capacity, while the poorest readers were not only working to full capacity, but were comprehending only about 25 per cent of the more difficult material and about 50 or 60 per cent of the easier material. From this study it is very obvious that the poor reader is greatly handicapped in his college work.

What can be done with these poor readers in college is a very serious problem. Colleges should guard against failures not only because of cost and waste of time, but because of the contributions of failure to social maladjustment and to social inefficiency. Psychological tests are given to entering college freshmen in order to eliminate the mentally inefficient, but many enter college who are equally handicapped because of reading difficulties. So far, little has been done to save these students from failure;

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<sup>12</sup>E. M. Anderson, "Individual Differences in the Reading Ability of College Students," Journal of Educational Research, Vol. 19 (April, 1929), pp. 309-310.



however, there is a growing interest in the problem, and several studies have been made which show that college students do improve in reading skills through remedial instruction in reading.

Robinson<sup>15</sup> made a study to see whether college freshmen in the lowest decile in reading could be aided scholastically. He selected a group of students from the first decile in comprehension in reading. These students were given remedial work in reading organized on a clinical basis so as to deal with each student individually. Marked gains were made in reading ability. This group raised its ranking in comprehension from the fifth percentile to the twenty-ninth, or a gain of 24 per cent; in rate it raised its ranking from the twenty-seventh to the seventieth percentile, or a gain of 43 per cent. There was an 18 per cent gain in grade point averages. The per cent of failures was reduced from 25 to 17 during the freshman year. After making this study Robinson arrived at the following conclusions:

1. The lowest tenth in reading after clinical treatment of their difficulties showed marked improvement in reading ability and in school success.
2. The lowest tenth in reading without training can be considered scholastic failures since most of them are eliminated the first year and those remaining continue as very poor students.
3. Intelligence and cooperation, two independent factors, determine the amount of gain with training.
4. A clinical method is more efficient than a class method and should be used in remedying specific reading difficulties.

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<sup>15</sup>F. P. Robinson, "Can College Freshmen in the Lowest Tenth in Reading Be Aided Scholastically," School and Society, Vol. 54 (December 19, 1951), pp. 845-6.

The permanent effect of training in reading and how to study was reported by Pressey<sup>14</sup> who made a study of a group of students over a period of three years and a half after they had had a course in how to study. Only those students who were below normal in intelligence and who were on probation were included in the study. This group was compared with a similar group without this training. In the trained group 58 per cent were saved from failure and 42 per cent failed, while in the control group 18 per cent were saved from failure and 82 per cent failed. In other words, the number of failures was reduced 40 per cent by this training.

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<sup>14</sup>L. C. Pressey, "The Permanent Effect of Training in Methods of Study on College Success," School and Society, Vol. 28 (September 29, 1928), p. 403.



## CHAPTER II

### THE PROBLEM AND METHOD OF TREATMENT

Statement of problem. — The problem of this thesis is to make a study of the reading ability of college students. Three phases of the problem are considered:

1. How well a group of unselected college freshmen can read.
2. What factors affect the reading ability of college students.
3. How reading ability affects scholastic achievement.

Scope of this study. — This study includes the records for the freshman year of a group of 258 freshmen who entered Western Kentucky State Teachers College in September, 1935.

Source of data. — The Nelson-Denny Reading Test, Form A was given to 225 students in English 101b at the beginning of the second semester. This group was, in a way, selected if there is a correlation between reading ability and achievement in English because all failures in English 101a of the first semester were excluded from this group; therefore, in order to make the group an unselected one, the test was given to thirty-three students in English 101a who were repeating the course after failing in it the first semester. The reading ability of each of these students was determined by the score made on this reading test. This test measures only comprehension and vocabulary; therefore, data on the different types of errors are very limited, which limits to a great extent the analysis of the causes of reading difficulties.

Other data consist of the scores obtained from The Teachers College Psychological Examination, Form B which was given to the entering freshmen in September, 1935; from scores made on an English achievement test

given to freshmen in freshman English courses for the purpose of homogeneous grouping; and from the grades made in all courses by these students during the school year 1935-36.

Treatment of data. — The data used in this thesis are treated from a comparative, analytical, and statistical standpoint. The reading tests were given, the papers scored, and the students grouped from high to low according to score made; the median, quartiles and deciles were computed, and the scores grouped according to these divisions. All other measures were treated in a similar way.

To determine how well these students can read the reading scores were analyzed, and they were compared with the norm of college freshmen on the test used.

To determine the factors which affect reading ability, comparisons were made between reading ability and intelligence, between comprehension and vocabulary, and between vocabulary and intelligence in order to determine the relation between these abilities.

To find how reading ability affects scholastic achievement, similar comparisons were made between reading ability and achievement in English as determined by the scores made on a standardized English test, and between reading ability and grade point averages made in all courses taken during the year. Various other analyses and comparisons were made, such as a comparison of grades made by students in the fourth quartile with those in the first; in which quartile most students quit school; and in which group the probation students are found.



### CHAPTER III

#### THE READING ABILITY OF COLLEGE FRESHMEN AND THE FACTORS WHICH AFFECT THEIR READING ABILITY

In order to determine how well the students in this unselected group of 258 college freshmen can read they were given the Nelson-Denny Reading Test, Form A. The reading ability of each student was determined by the score made on this test. A study of the individual differences among the students of the group is made, and an effort is made to determine the cause of the wide range of difference. The reading ability of the group as a whole is compared with the norm for college freshmen on the test used.

TABLE I

#### COMPARISON OF READING ABILITY IN THE DIFFERENT QUARTILES

Reading quartile	Number of students	Average score	Range	S. D.
4	65	103.77	87 - 147	13.68
3	62	76.46	68 - 86	5.15
2	64	61.72	56 - 67	3.66
1	67	44.59	17 - 55	8.94

Table I is a quartile grouping of the students according to their reading ability. In this table are given the average score, the range, and the standard deviation of each reading quartile. That extreme individual differences exist in the reading ability of the 258 students considered in this study may be noted by observing the lowest score made in the first quartile and the highest score in the fourth quartile. The range of ability is from

17 to 147, or a difference of 130 points. The reading ability of the best reader in this group is 8.6 times that of the poorest reader; in other words, the best reader can master 8.6 times as much reading material in a given time as can the poorest reader.

In analyzing Table I, it is significant to note that the average score in the fourth quartile is 105.77 while that in the first is only 44.59 which shows that the reading ability of the average student in the fourth quartile is 2.3 times that of the average student in the first quartile.

To summarize the statements made in the last two paragraphs we may say that it takes the poorest reader at least eight times as long to master a class assignment as it does the best reader of the group; or a class including students in the fourth reading quartile could master an assignment 2.3 times as long in a given time as could a class consisting of students from the first reading quartile. If the poorest readers of this group attempt to master their assignments and try to keep up with the best readers in their class, they must work hard, which some of them do, as is shown by the grades made. What to do with the individual differences of a group of students like this is a serious problem.



TABLE II  
THE READING ABILITY OF THIS GROUP COMPARED  
WITH THE NORM FOR COLLEGE FRESHMEN

	Norm	This group
Q <sub>3</sub>	87	86.75
Median	70	67.78
Q <sub>1</sub>	85	85.46
Range	34 - 129	17 - 147
Per cent above standard median		44
Per cent below standard median		56

In comparing these students with the norm for college freshmen, Table II shows that the median is 67.78 or 2.22 points below standard median; 56 per cent of the students fall below standard median, while 44 per cent fall above. There was found to be 3.8 per cent of the group below the first percentile ranking for college freshmen while 1.5 per cent rank above the 100 percentile level. To refer again to Table I, by noting the range and standard deviation of the fourth quartile, it is evident that the scores toward the upper limit of the range are very scattered, while the majority cluster below the midpoint of the scale. Thus we see a few of these students read well, but from some cause the median of this group is slightly below the standard. Since these students come from all parts of Kentucky, the schools of Kentucky should be concerned about the cause of this difference.

### Factors Which Influence Reading Ability

The next step in this study is to try to determine the cause of this wide range of difference in the reading ability of students. Why does one student make a score of only 17 on a standardized reading test while another makes a score of 147? Is it a lack of intelligence, or a limited vocabulary, or is it due to some other cause?

Since the reading test used measures only vocabulary and comprehension, and since the only other available datum is the psychological test score of each student which is supposed to measure his intelligence, the analysis of this phase of the study is very limited.

The relationships between comprehension and intelligence, between comprehension and vocabulary, and between vocabulary and intelligence are roughly shown in Tables III to V which follow on pages 14 to 16.



TABLE III

DECILE RANKING OF COMPREHENSION SCORES AND PSYCHOLOGICAL SCORES:  
DISTRIBUTION OF SCORES IN EACH COMPREHENSION DECILE AMONG THE  
DIFFERENT PSYCHOLOGICAL DECILES

Psychological Score Decile	Comprehension Score Decile										Total
	1	2	3	4	5	6	7	8	9	10	
10						1	2	7	7	8	25
9		1		1	1	2	5	8	7	1	26
8		1			3	1	3	11	5		24
7	2	1	4	1	3	3	3	3	3		23
6	1	3	1	4	4	2	1	6			22
5	4	5	6	2	8	1	1	1	1		29
4	4	11	4	2	7	1	5	1			35
3	1	3	1		2	2	1	1			11
2	3	4	4	1	3	1	2	2	2		22
1	11	14	3	1		1	2	1			33
No Score		1	2		1	2		2			8
Total Comp. Scores	26	44	25	12	32	17	25	43	25	9	258
Per Cent in Same Decile	42.3	9.1	4.0	16.7	25.0	11.8	12.0	25.6	28.0	88.9	
Per Cent Above	57.7	56.8	60.0	66.6	34.4	41.2	40.0	34.9	28.0	00.0	
Per Cent Below	00.0	31.8	28.0	16.7	37.5	35.2	48.0	34.9	44.0	11.1	
Per Cent no Psy. Score	00.0	2.3	8.0	00.0	3.1	11.8	00.0	4.6	00.0	00.0	

TABLE IV

DECILE RANKING OF COMPREHENSION SCORES AND VOCABULARY SCORES:  
DISTRIBUTION OF SCORES IN EACH COMPREHENSION DECILE AMONG  
THE DIFFERENT VOCABULARY DECILES

Vocabulary Score Decile	Comprehension Score Decile										Total
	1	2	3	4	5	6	7	8	9	10	
10					1	1		9	6	7	24
9				1		3	4	10	10	1	29
8		1	1		3	2	4	5	2	1	19
7		4	1	2	5	4	3	6	2		27
6	1	5	4	1	5	2	3	2	2		25
5	3	5	2	2	5	1	2	4	1		25
4	3	4	6	4	4	1	1	2			25
3	2	7	4		5	2	2	2	1		25
2	5	7	4	1	2	1	2	2	1		25
1	12	11	3	1	2		4	1			34
Total Com- prehension Score	26	44	25	12	32	17	25	43	25	9	258
Per Cent in Same Decile	46.1	15.9	16.0	33.3	15.6	11.8	12.0	11.6	40.0	77.8	
Per Cent Above	53.9	59.1	56.0	50.0	43.8	58.8	32.0	44.2	24.0	00.0	
Per Cent Below	0.0	25.0	28.0	16.7	40.6	29.4	56.0	44.2	36.0	22.2	



TABLE V

DECILE RANKING OF VOCABULARY SCORES AND PSYCHOLOGICAL SCORES:  
DISTRIBUTION OF SCORES IN EACH VOCABULARY DECILE AMONG THE  
DIFFERENT PSYCHOLOGICAL DECILES

Psychologi- cal Score Decile	Vocabulary Score Decile										Total
	1	2	3	4	5	6	7	8	9	10	
10						1		1	11	12	25
9					1		4	4	13	4	26
8	1		1		3	1	5	6	3	4	24
7	1	2		1	4	3	6	5		2	24
6		3	2	4	6	5	2				22
5	4	4	4	4	2	5	4			1	28
4	4	6	6	8	4	6	1				35
3	1	2	2	2	1		2				10
2	6	2	4	2	4	2	2	1			25
1	17	6	5	3		1				1	33
No Score			1	1		1	1	2	2		8
Total Vocabulary Score	54	25	25	25	25	25	27	19	29	24	258
Per Cent in Same Decile	50.0	8.0	8.0	32.0	8.0	20.0	22.2	31.6	44.8	50.0	
Per Cent Above	50.0	68.0	52.0	36.0	56.0	20.0	53.5	26.3	37.9	00.0	
Per Cent Below	00.0	24.0	56.0	28.0	36.0	56.0	40.8	51.6	10.4	50.0	
Per Cent No Psy. Score	00.0	00.0	4.0	4.0	00.0	4.0	3.7	10.5	6.9	00.0	

Table III is a decile ranking of comprehension test scores and psychological test scores. This table shows in which psychological decile each student in each of the reading deciles falls; it shows also the per cent in each reading decile which falls in the corresponding psychological decile, the per cent which falls above, and the per cent which falls below. The same relation is shown between comprehension and vocabulary in Table IV, and between vocabulary and intelligence in Table V.

From an analysis of Table III there seems to be a very significant relationship between comprehension and intelligence; especially does the correlation seem to be high in the tenth comprehension decile since 88.9 per cent of the comprehension scores in this decile fall in the tenth psychological decile; only one score falls in the ninth psychological decile and none below. The per cent of comprehension scores falling in the corresponding psychological decile rapidly decreases until the fifth decile is reached, and from the fifth to the first the per cent is very irregular which shows that there is a greater spread or scatter of scores, thus indicating a lower correlation in the lower deciles than is found in the upper deciles.

The data show that there is a significant relationship between reading ability and intelligence. The facts given seem to indicate that an individual cannot be a good reader unless he ranks high in intelligence, but he may be intelligent and yet be a poor reader; in other words, intelligence is an important factor in reading ability, but other factors than intelligence may seriously affect it.

In analyzing Table IV there seems to be about the same relationship between comprehension and vocabulary as between comprehension and intelligence. There is the same tendency toward a higher correlation in the upper comprehension deciles than in the lower, since 77.8 per cent of the scores in



the tenth decile fall in the tenth vocabulary decile with none falling below the eighth, and the per cent falling in the same decile decreases toward the lower limit of the scale. This table shows that vocabulary is an important factor influencing reading ability.

Since intelligence and vocabulary seem to have about the same influence upon comprehension, Table V is given to show the relationship between vocabulary and intelligence and to determine whether intelligence has the greater influence on comprehension or on vocabulary by comparing this table with Table III. Perhaps there is a closer relationship between intelligence and vocabulary than between intelligence and comprehension since there appears to be less scatter in the scores.

Chapter Summary.—

1. There is a wide range in the reading abilities of college students.
2. There is a significant relationship between reading ability and intelligence, especially in the upper reading deciles.  
The data given seem to indicate that an individual cannot be a good reader without ranking high in intelligence, but he may be intelligent and yet be a poor reader; in other words, intelligence is an important factor in reading ability, but other factors than intelligence may seriously affect it.
3. Vocabulary also is an important factor in reading ability.

## CHAPTER IV

### HOW READING ABILITY AFFECTS SCHOLASTIC ACHIEVEMENT

In this chapter an effort is made to determine the relationship between reading ability and scholastic achievement as measured by average grade points earned per hour of all work completed in college and by scores made on a standardized English achievement test. In determining the grade point average, the value assigned to each of the different grades given in this college is listed in Table VI.

TABLE VI

POINT RATING PER HOUR OF GRADES EARNED

Grade	Point Rating
A	3
B	2
C	1
D	0
F	-1



TABLE VII

DECILE RANKING OF READING SCORES AND GRADE POINT AVERAGES:  
DISTRIBUTION OF SCORES IN EACH READING DECILE AMONG THE  
DIFFERENT GRADE POINT AVERAGE DECILES

Grade Point Average Deciles	Reading Score Deciles										Total
	1	2	3	4	5	6	7	8	9	10	
10					1		4	6	5	10	26
9		1	1	1	1	2	1	3	10	3	23
8		2	2	2	4	4	3	4	6	1	28
7	1	1	1	1	1	4	5	4	2	5	25
6	1	2	4	4	4	3	5	2	1	1	25
5	7	3	6	3		6	3		2		30
4	3	4	3	7	3	1	1	3	1		26
3	6	4	4	2	3	3			1		23
2	8	4	5	7	3	3	3	1	2	1	37
1	2	2	1	5	1		2	1		1	15
Total Read- ing Scores	28	23	27	32	21	26	25	24	30	22	258
Per Cent in Same Decile	7.1	17.4	14.8	21.9	00.0	11.5	20.0	16.7	33.3	45.5	
Per Cent Above	92.9	73.9	63.0	54.4	52.4	58.5	32.0	37.5	16.7	00.0	
Per Cent Below	00.0	8.7	22.2	43.7	47.6	50.0	48.0	45.8	50.0	54.5	

TABLE VIII

DECILE RANKING OF READING SCORES AND ENGLISH ACHIEVEMENT SCORES:  
DISTRIBUTION OF SCORES IN EACH READING DECILE AMONG THE DIFFERENT  
ENGLISH ACHIEVEMENT DECILES

English Achievement Deciles	Reading Score Deciles										Total
	1	2	3	4	5	6	7	8	9	10	
10						1	5	4	4	7	21
9		1				2	1	6	8	5	25
8		2	2	2	4	3	4	2	2	2	23
7	1			4	1	5	4	3	3	3	24
6	1	2	3	4	2	3	2	3	1	1	22
5	3	1	4	2	5	2	2	1	3		23
4	3	2	4	2	1	5	1	1	2	4	25
3	4	6	3	8	3		1		3		28
2	2	2	2	4	1	2	4		2		19
1	10	3	5	3	2	2	1	1			27
No Score	4	4	4	3	2	1		1	2		21
Total Reading Scores	28	23	27	32	21	26	25	24	30	22	258
Per Cent in Same Decile	35.7	8.7	11.1	6.3	23.8	11.5	16.0	8.3	26.7	31.8	
Per Cent Above	50.0	60.9	48.2	37.5	33.3	42.3	40.0	50.0	15.3	00.0	
Per Cent Below	00.0	13.0	25.9	46.8	33.3	42.3	44.0	37.5	53.3	68.2	
Per Cent No Eng. Score	14.3	17.4	14.8	9.4	9.6	5.9	00.0	4.2	6.7	00.0	



The first comparison made is the decile ranking of reading scores and grade point averages as is shown in Table VII. This table shows the distribution of scores in each reading decile among the grade point average deciles; for example, of the twenty-two scores in the tenth reading decile, ten fall in the tenth grade point average decile, three in the ninth, etc. This table shows that there is a tendency for grades in each grade point average decile to cluster around the corresponding reading decile.

It is significant to note that no student in the first reading decile ranks above the seventh grade point average decile. Students in the lower reading deciles do not make very high grades, while very few students ranking high in reading ability make low grades. However, students in the lower reading deciles hold their grades up to a higher average than would be expected from their reading ability. According to the findings in Chapter III, this can be accomplished only by hard work.

There is a closer relationship between grades and reading ability in the upper reading deciles than in the lower as is shown by the per cent of scores falling in the corresponding grade point average decile; in the tenth reading decile 45.5 per cent of scores fall in the tenth grade point average decile, while in the first decile only 7.1 per cent fall in the same psychological decile.

The data given in Table VII indicate that there is a significant correlation between reading ability and grades made in college.

A similar comparison is made in Table VIII between reading ability and achievement in English as measured by scores made on an English achievement test. About the same relationship is shown with the exception that there is a more uniform relationship ranging from the first to the tenth decile.

TABLE IX

DECILE RANKING OF PSYCHOLOGICAL SCORES AND GRADE POINT AVERAGES:  
DISTRIBUTION OF SCORES IN EACH PSYCHOLOGICAL DECILE AMONG  
THE DIFFERENT GRADE POINT AVERAGE DECILES

Grade Point Average Deciles	Psychological Score Deciles										Total
	1	2	3	4	5	6	7	8	9	10	
10				1		1	1	2	9	13	27
9			2	3	1		4	4	2	4	20
8		2	1	2	4	2	3	4	4	3	25
7		2		2	2	3	6	3	4	3	25
6	4	3	1	1	5	4	2	2	1		23
5	4	5	2	4	6	2	2	4	1		30
4	6	3	2	7	1	1	4	1	1	1	27
3	6	3		5	4	3	1		1		23
2	9	6	2	7	5	3		1	2		35
1	2	2	1	2	2	2	1	1	1	1	15
Total Psy. Scores	31	26	11	34	30	21	24	22	26	25	(a) 250
Per Cent in Same Decile	6.5	23.1	00.0	20.6	20.0	19.0	25.0	18.2	7.7	52.0	
Per Cent Above	93.5	69.2	72.7	38.2	40.0	28.6	33.3	27.3	34.6	00.0	
Per Cent Below	00.0	7.7	27.3	41.2	40.0	52.4	41.7	54.5	57.7	48.0	

(a)

Eight students in this group did not take the psychological test.



The writer was interested to find whether reading ability or intelligence has the greater influence on grades made. By comparing Table IX with Table VII, it is found that each has about the same influence; there is about the same tendency for grades in each grade point average decile to cluster around the corresponding psychological decile as around the corresponding reading decile.

In Table IX it is shown that no student in the first psychological decile ranks above the sixth grade point average decile. Students in the lower psychological deciles hold their grades up to a fairly good average to a certain limit, but there is a definite limit above which they cannot go. The writer is of the opinion that students in this school who are limited in reading ability and intelligence work hard to make their grades.

TABLE X  
COMPARISON OF GRADES MADE BY STUDENTS  
IN THE DIFFERENT READING QUARTILES

Reading Quartile	Number of Students	Average Grade Point Average	Range	S. D.
4	65	1.74	-0.11 to 2.98	.80
3	62	1.35	-0.16 to 2.77	.58
2	64	.81	-1.00 to 2.18	.70
1	67	.66	-0.19 to 1.97	.62

TABLE XI

COMPARISON OF ACHIEVEMENT IN ENGLISH BY STUDENTS  
IN THE DIFFERENT READING QUARTILES

Reading Quartile	Number of Students	Average Score on English Test	Range	S. D.
4	65	112.74	79 to 148	15.9
3	62	107.34	67 to 148	17.1
2	64	94.91	60 to 114	11.6
1	67	89.90	61 to 119	12.8

The importance of reading in scholastic success is indicated by the data given in Tables X and XI. The significant fact shown by these tables is that average achievement is greater in increasing degree as we find greater reading ability. The average grade point average of the 65 students in the fourth reading quartile is 1.74 while that in the first reading quartile is only .66 which is a difference of 1.08 points.

By noting the upper limit of the range in each quartile, it is plainly seen that reading ability is a limiting factor in the grades made since no student in the first quartile makes above a grade point average of 1.97; the upper limit in the second quartile is 2.18; that of the third is 2.77; and the fourth is 2.98.

Table XI shows that achievement in English is affected by reading ability to about the same extent as is the grade point average of grades earned in college.



TABLE XII

COMPARISON OF THE FIRST AND FOURTH READING QUARTILES  
IN SOME PHASES OF SCHOLASTIC ACHIEVEMENT

	Per Cent of Total Number in Both Reading Quartiles Which Fall In Each	
	First Quartile	Fourth Quartile
Hours of A's	15.3	84.7
Hours failed	79.2	20.8
Hours of D's	74.6	25.4
Hours incomplete	85.6	14.4
Number of Students Who Quit School	71.4	28.6
Total Number on Proba- tion, end of both Semesters	78.7	21.3
F's made in English	80.0	20.0
A's made in English	10.9	89.1

In interpreting the data in Table XII it is found that 5.5 times as many hours of A's are made by students in the fourth reading quartile as in the first, while 3.8 times as many hours are failed in the first quartile as in the fourth. There are about six times as many hours left incomplete in the first quartile as in the fourth. About 2.5 times as many students quit school in the first reading quartile as in the fourth; 3.6 times as many are placed on probation. Limiting the grade to English it is found that 4 times as many F's are made by students in the first reading quartile as in the fourth and that 8 times as many A's are made in the fourth as in the first.

In making a further comparison of grades made in the two quartiles, it was found that 72.5 per cent of all the students in the first reading quartile

did not make an average grade of C, and that no student in this group made an average of B. In the fourth reading quartile only 9.5 per cent of the students made below a C average while 36.9 per cent made an average grade of B or above.

Thus in all the comparisons made, it is found that scholastic achievement is affected by the reading ability of the student.



## CHAPTER V

### SUMMARY, CONSLUSIONS, AND RECOMMENDATIONS

#### Summary

There is a wide range of difference in the reading abilities of college students. The range of ability among the 258 students considered in this study is from 17 to 147 or a difference of 130 points. The ability of the best reader is 8.6 times that of the poorest reader. The reading ability of the average student in the fourth quartile is 2.3 times that of the average student in the first quartile.

There is a significant relationship between reading ability and intelligence, especially in the upper reading deciles. The data given seem to indicate that an individual cannot be a good reader without ranking high in intelligence, but he may be intelligent and yet be a poor reader; in other words intelligence is an important factor in reading ability, but other factors than intelligence may seriously affect it.

Vocabulary is an important factor in reading ability. Vocabulary has about the same influence on comprehension as does intelligence.

Reading ability is a limiting factor in scholastic achievement as is shown by the following facts:

1. No student in the first reading quartile made an average grade of B.
2. In the first reading quartile 72.5 per cent of the students fell below a C average, while in the fourth quartile only 9.5 per cent of the students fell below a C average.
3. In freshman English four times as many F's were made in the first reading quartile as in the fourth, while eight times as many A's were made in the fourth quartile as in the first.

It was found that 2.5 times as many students quit school and 3.6 times as many are placed on probation from the first quartile as from the fourth.

Reading ability seems to have about as much influence on grades as does intelligence.

### Conclusions

There is a wide range in the reading ability of college students. Since the best reader in this group can master about eight times as much reading material as can the poorest reader, and the average ability in the fourth quartile is 2.5 times that in the first quartile, it is very evident that the poorest readers are greatly handicapped in their school work. If the inefficient readers attempt to keep up with their class and try to make good grades they must work hard.

The chance for failure in college is very much greater among poor readers. If they attempt to make fair grades they have to work so hard that the chances are they will become discouraged and quit school, or if they are indifferent about their grades, many fail and are automatically eliminated.

Reading ability is a limiting factor in scholastic achievement as measured by grades made in college courses and by scores made on standard achievement tests.

Since it was found that many of the students in the lower deciles in both reading ability and intelligence hold their grades up to a fairly good average, the writer is of the opinion that students in this school who are limited in reading ability and intelligence work hard to make their grades and that they are given a fair chance to succeed through individual help from their instructors.



### Recommendations

Since reading is such an important subject it is recommended that further research be made in this field. Especially should an effort be made to determine the causes of reading disabilities in order that the causes may be eliminated and thus try to prevent the development of reading difficulties.

Since students do have reading difficulties, and since the inefficient readers are so greatly handicapped in their school work, it is recommended that comprehensive reading tests be given to high school students, that their reading difficulties be diagnosed, and that remedial instruction in reading be given to the inefficient readers in order that whatever difficulties may have developed be overcome before they reach the college level.

Until the reading program is so successfully carried out in the grades and in high schools that no students reach the college level with reading disabilities, it is recommended that remedial instruction in reading be given in college to those students ranking low in reading ability in order to try to reduce the number of failures in college.

## THE CLAPP-YOUNG SELF-MARKING TESTS

Patented March 19, 1929

Edited by Frank L. Clapp, Professor of Education, University of Wisconsin

## THE NELSON-DENNY READING TEST

FOR COLLEGES AND SENIOR HIGH SCHOOLS

## VOCABULARY AND PARAGRAPH. FORM A.

By M. J. Nelson, Ph.D., Director of Research, and E. C. Denny, M.A., Professor of Education, both of Iowa State Teachers College, Cedar Falls, Iowa

Copyrighted, 1929, by M. J. Nelson and E. C. Denny

## TEST FOLDER

To be used with a special Answer Booklet

## DIRECTIONS TO STUDENTS

- A. Do not open this Test Folder or turn it over until directed to do so. During the test, do not put any marks of any kind in it.
- B. Your Answer Booklet is sealed and under no circumstances are you to open it during the test.
- C. How to adjust the Test Folder to the Answer Booklet: (Follow each step as the Examiner reads.)

- a. Lay your Answer Booklet on the desk with the title-page up. Lay the Test Folder on top of the Answer Booklet so that the right-hand edge comes just along the short column of squares in the Answer Booklet headed "Sample Exercises." Move the Test Folder up or down until each of the three arrows on the right-hand edge of this page points directly towards an arrow in the Answer Booklet, like this  $\Rightarrow \rightarrow \leftarrow \leftarrow \leftarrow$ . Read the Sample Exercises, including the "Note" below.

## SAMPLE EXERCISES

1. A linguist is trained in 1. art 2. law 3. language 4. writing 5. history.....  $\Rightarrow$   
*Note.*—In the exercise above, "language" is the correct word. This is indicated, as you see, by placing a mark "x" in the square which is numbered "3" in the Answer Booklet. This is the way you indicate your answers in the test. If you find you have marked in a wrong square, do not erase it, but simply draw a circle around it and mark in the square that you think is the right one. Bear firmly on your pencil when you make the marks. Note Exercises 2 and 3 below.  $\Rightarrow$

2. A dog is 1. a reptile 2. a plant 3. a stone 4. an animal 5. a book.....  $\Rightarrow$
3. Bread is to 1. eat 2. wear 3. play with 4. read 5. write with.....  $\Rightarrow$

- b. Turn this leaf of your Test Folder clear back and under your answer Booklet, creasing it at the fold so that it will lie flat.  $\Rightarrow$
- c. Note that you have Page 1 of the test before you. Move the Test Folder to the right until its right-hand edge comes just along the column of squares in the Answer Booklet headed "For Page 1." Move the Answer Booklet up or down until the arrows point toward each other. Wait for the signal to begin.

HOUGHTON MIFFLIN COMPANY

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# VOCABULARY TEST (beginning)

1. A detestable person is 1. dangerous 2. carefree 3. hateful 4. delightful 5. anxious .....
2. An impenetrable shield cannot be 1. worn 2. seen 3. described 4. pierced 5. carried .....
3. To gain eminence means to gain 1. wealth 2. weight 3. distinction 4. happiness 5. knowledge .....
4. Ecstasy generally refers to excessive 1. appetite 2. grief 3. joy 4. drinking 5. care .....
5. An illiterate person is 1. untidy 2. unwary 3. unskilled 4. unwise 5. unschooled .....
6. Idolatry involves 1. worship 2. masonry 3. laziness 4. thieving 5. preaching .....
7. A pudgy man is 1. dirty 2. handsome 3. powerful 4. amiable 5. short and fat .....
8. A falcon is a 1. part 2. pennant 3. hawk 4. horn 5. mammal .....
9. When fruit matures it becomes 1. spoiled 2. wormy 3. greenish 4. poisonous 5. ripe .....
10. A felon is a 1. tramp 2. juvenile 3. keeper 4. follower 5. criminal .....
11. A decrepit article is 1. treacherous 2. firm 3. worn out 4. deep 5. changing .....
12. A conflagration is a 1. disease 2. gathering 3. religious ceremony 4. conclusion 5. fire .....
13. An indictment is a 1. charge 2. statute 3. commission 4. warning 5. proclamation .....
14. A penitent person is 1. inconstant 2. embittered 3. sorry 4. unlearned 5. awestruck .....
15. Omnipotent means 1. all-wise 2. forgiving 3. tolerant 4. avenging 5. all-powerful .....
16. Forbearance is 1. vexation 2. disapproval 3. disgust 4. restraint 5. transportation .....
17. To harass is to 1. annoy 2. defame 3. locate 4. appease 5. salute .....
18. To feign is to 1. fret 2. faint 3. molest 4. pretend 5. portend .....
19. A commodious box is 1. strong 2. watertight 3. tricky 4. porous 5. roomy .....
20. A brazen person is 1. shameless 2. strong 3. impatient 4. timid 5. opinionated .....
21. A heinous act is 1. timely 2. altruistic 3. impulsive 4. sincere 5. outrageous .....
22. To consecrate is to 1. publish 2. proclaim 3. hallow 4. free 5. pardon .....
23. A casualty is an 1. expedition 2. accident 3. effect 4. insurance 5. accusation .....
24. A frugal person is 1. homely 2. profane 3. saving 4. gallant 5. ill-mannered .....
25. An ominous cloud is 1. high 2. fleecy 3. black 4. threatening 5. stationary .....
26. A metropolitan person is 1. city-minded 2. polite 3. cultured 4. boorish 5. rural-minded .....
27. To predominate means to 1. withdraw 2. prevail 3. disdain 4. preside 5. corrupt .....
28. One who is amenable is 1. irresponsible 2. submissive 3. unruly 4. saucy 5. envious .....
29. Dogma is a system of 1. mathematics 2. psychology 3. faith 4. biology 5. marriage .....
30. When fears are allayed they are 1. calmed 2. increased 3. expressed 4. ignored 5. united .....
31. Concatenated objects are 1. opened 2. sharpened 3. linked together 4. separated 5. gilded .....
32. The onion is an 1. apple 2. onion 3. animal 4. herb 5. enclosure .....
33. To mangle is to 1. mend 2. mix 3. crush 4. disgorge 5. weave .....
34. Desultory study is 1. rambling 2. sincere 3. rapid 4. strenuous 5. concentrated .....

Without waiting for directions continue this same test on Page 2. Turn this page just as you did the first one.

## VOCABULARY TEST (cont'd)

Move Answer Booklet over to the column headed "For Page 2." Be sure the arrows point toward each other.

35. An innovation is something 1. unlawful 2. complicated 3. imported 4. new 5. silly .....
36. To relinquish is to 1. droop 2. forsake 3. demand 4. relive 5. lengthen .....
37. Juniper is a 1. fern 2. tree 3. creeper 4. resin 5. weed .....
38. To parley is to 1. surrender 2. skirmish 3. overflow 4. converse 5. exchange .....
39. Binary means 1. ancient 2. two-fold 3. obstructive 4. enclosed 5. unnecessary .....
40. To prate is to make a foolish 1. calculation 2. vow 3. boast 4. experiment 5. inquiry .....
41. A parable is a 1. dialogue 2. fable 3. playlet 4. doctrine 5. miracle .....
42. A baroscope is used in 1. botany 2. photography 3. metal work 4. hauling 5. weather forecasting .....
43. Alabaster is a variety of 1. plant 2. rock 3. coal 4. fowl 5. sea-weed .....
44. A verdant plant is 1. wilted 2. decayed 3. injurious 4. fresh 5. woody .....
45. To pervert is to 1. corrupt 2. employ 3. enlist 4. disfranchise 5. return .....
46. To emboss is to 1. command 2. inspect 3. urge 4. paint 5. decorate .....
47. A rampart is a 1. ramrod 2. tower 3. ditch 4. barricade 5. dungeon .....
48. An adze is used by a 1. teacher 2. carpenter 3. mathematician 4. decorator 5. musician .....
49. A gradation of colors refers to 1. arrangement 2. lack of harmony 3. washed-out appearance 4. symbolic meaning 5. production by sunlight .....
50. To decoy is to 1. estrange 2. tease 3. entice 4. defy 5. bluff .....
51. A loquacious person is 1. silent 2. talkative 3. dull 4. ill 5. out of place .....
52. A seraph is an 1. imp 2. unbeliever 3. outcast 4. automaton 5. angel .....
53. Dissension involves 1. freedom 2. forgiveness 3. flight 4. discord 5. harmony .....
54. A filigree is a 1. villain 2. hog 3. thief 4. young mare 5. decorative work .....
55. To supplant is to 1. displace 2. transfer 3. resume 4. reset 5. alternate .....
56. A prelate is high in the 1. navy 2. church 3. drama 4. government 5. lodge .....
57. To show clemency is to show 1. wisdom 2. fear 3. leniency 4. revenge 5. tolerance .....
58. To enhance is to 1. protect 2. enter 3. capture 4. enlarge 5. pursue .....
59. Impervious materials are 1. imperfect 2. impetuous 3. impenetrable 4. dangerous 5. obstructive .....
60. A mutable thing is 1. constant 2. rough 3. changeable 4. noiseless 5. destructive .....
61. A potentate is a 1. slave 2. marine 3. supervisor 4. consul 5. sovereign .....
62. A filiform object is 1. threadlike 2. opaque 3. incandescent 4. sharp 5. uniform .....
63. A myriad group is 1. merry 2. misguided 3. angry 4. treacherous 5. innumerable .....
64. Extraneous materials are 1. weighty 2. useful 3. foreign 4. singular 5. strong .....
65. To recapitulate is to 1. behead 2. withdraw 3. oppose 4. surrender 5. summarize .....
66. A grot is a 1. creature 2. metal 3. cave 4. stove 5. race of people .....
67. Rapine means 1. boxing 2. plundering 3. conspiring 4. betting 5. longing .....

Without waiting for directions continue this same test on Page 3. Turn this page just as before.



## VOCABULARY TEST (cont'd)

Move Answer Booklet over to the column headed "for Page 3." Be sure the arrows point toward each other.

68. A scorpion is a 1. spider 2. wasp 3. bee 4. larva 5. beetle .....
69. A moorland is 1. woodland 2. wheatland 3. wasteland 4. highland 5. a homestead .....
70. A guilder is a 1. fiber 2. coin 3. brush 4. mixer 5. jewel .....
71. A pterodactyl is a 1. fingernail 2. weapon 3. flying reptile 4. sovereign 5. disease .....
72. Disepalous is a term used in 1. medicine 2. art 3. music 4. millinery 5. botany .....
73. A lewd person is 1. shallow 2. stingy 3. sanctimonious 4. depraved 5. shrewd .....
74. A whelp is an animal that is 1. fierce 2. lazy 3. sly 4. cunning 5. young .....
75. A lanyard is most often used in 1. ships 2. houses 3. shops 4. butchering 5. surveying .....
76. A gratuitous assumption is 1. false 2. without proof 3. well-balanced 4. irritating 5. witty ..
77. A believer in heresy is a 1. dissenter 2. magician 3. pagan 4. idolator 5. scientist .....
78. A palpable object is 1. injurious 2. obvious 3. ghostly 4. spiritual 5. powerful .....
79. A seminiferous plant is 1. noxious 2. perennial 3. old 4. seedbearing 5. disease carrying .....
80. A palliative tends to 1. display 2. complete 3. diminish 4. dignify 5. produce .....
81. To seek sanctuary is to seek 1. independence 2. permission 3. proof 4. salvation 5. shelter ..
82. A succinct statement is 1. concise 2. satirical 3. muttered 4. secret 5. long .....
83. Pneumatic pressure is 1. powerful 2. hydraulic 3. uneven 4. gaseous 5. intermittent .....
84. A vulpine creature is 1. sick 2. slow 3. wounded 4. vulgar 5. crafty .....
85. Bigotry refers to 1. dual marriage 2. immensity 3. secrecy 4. intolerance 5. drawing .....
86. Tellural objects pertain to 1. man 2. animals 3. banking 4. earth 5. worship .....
87. A salutary effect is 1. speedy 2. snappy 3. perplexing 4. wholesome 5. hesitant .....
88. An incumbent burden is 1. obligatory 2. hateful 3. annoying 4. bulky 5. bearable .....
89. One who is astute is 1. severe 2. amazed 3. crafty 4. stupid 5. envious .....
90. A salubrious climate is 1. damp 2. healthful 3. cold 4. hot 5. changeable .....
91. Philology is the science of 1. stars 2. races 3. words 4. atoms 5. planting .....
92. A scurrilous attack is 1. hurried 2. feeble 3. desperate 4. abusive 5. inoffensive .....
93. To eschew is to 1. antagonize 2. shun 3. masticate 4. revile 5. attack .....
94. By scoria is meant 1. slag 2. contempt 3. amount 4. opening 5. marking .....
95. A sedulous person is 1. unhappy 2. happy 3. quiet 4. alluring 5. diligent .....
96. Lanugo is a term used in 1. mathematics 2. anatomy 3. farming 4. shipping 5. commerce ..
97. A lintel is used in making 1. dresses 2. quilts 3. auto-polish 4. butter 5. buildings .....
98. Hirsute means 1. smooth 2. sympathetic 3. ugly 4. shaggy 5. mouthy .....
99. A troglodyte is a 1. cave dweller 2. crystal formation 3. surveyor's instrument 4. singer 5. small insect .....
100. An eschalot is a variety of 1. animal 2. boat 3. weapon 4. bird 5. onion .....

## END OF VOCABULARY TEST

If time has not yet been called, you may look back over your work. Wait for directions.



# The Nelson-Denny Reading Test

For Colleges and Senior High Schools

Vocabulary and Paragraph, Forms A and B

## MANUAL OF DIRECTIONS

By M. J. Nelson, Ph.D., Director of Research, and E. C. Denny, M.A., Professor of Education, both of the Iowa State College, Cedar Falls, Iowa

## DESCRIPTION OF THE TEST

### Purpose and General Character

The test is designed to serve the following purposes: (1) to predict probable success in college; (2) to section incoming college or high-school classes; and (3) to aid in the diagnosis of students' difficulties.

The test consists of two parts: (1) a test of vocabulary; and (2) a test of ability to read and understand paragraphs. There are 100 words in the vocabulary test, and nine selections of approximately 200 words each in the paragraph test. Four questions are asked concerning each paragraph. The score on the vocabulary test is the number of exercises answered correctly, a perfect score being 100. To secure the score on the paragraph test, it has been found advisable to multiply the number of questions answered correctly by two, since this gives the best prediction of success in most subjects. Thus a perfect score on the paragraph test is 72 and the maximum combined score is 172. The time limit for the vocabulary test is 10 minutes; for the paragraph test, 20 minutes.

Two forms of the test are available, Form A and Form B. The two forms are constructed in the same way and are equal in difficulty.

### Validity

The vocabulary test was constructed by first choosing 400 words from the *Thorndike Word List* and from Horn's *Basic Writing Vocabulary*. An additional 200 words were then chosen from various tests, care being taken to choose such words as had been found to have some testing value. The inclusion of these 200 words was deemed necessary to secure a list of sufficient difficulty for the students to be tested. Each of the 600 words was then given five definitions, one of which was correct. These 600 words, together with their five definitions, were then mimeographed in three groups of 200 items each, and all of them administered to approximately 390 students. The students in this group represented all of the four college classes. A number of high-school seniors were also included. The frequency of error for each item was thus determined, and from the initial list of 600 words, 200 items were chosen, 100 of which appear in each form of the test. The words were so chosen that the difficulty of a given item in Form A is the same as the difficulty of the item bearing the corresponding number in Form B. The items are arranged in order of increasing difficulty and are so scaled that the increase in difficulty from one item to the next is approximately the same in any part of the test.

The procedure for the paragraph test was similar. Twenty-seven 200-word selections were chosen with a view to representing various types of reading matter, the reading of which would not require acquaintance with a technical vocabulary, and of the general character that a student is likely to meet in college work. After administering these to about 450 students, 18 selections were chosen, 9 of which appear in each form of the test. These were chosen and scaled by the same method employed in the vocabulary test.

### Reliability

The reliability, as determined by finding the correlation between the two forms of the test, is  $r = .914 \pm .013$ . To determine the reliability, Form A, followed by Form B, was administered to college freshmen. The standard deviations of scores were 21.7 and 22.2 for Forms A and B, respectively. The probable error of a score is therefore approximately 4 points.

When a second form was given on the day succeeding the administration of the first form, an average gain of 1.4 points was made in the second case. This apparent practice effect may be due to the increased familiarity with the nature of the tests, which permits one to devote all of his energies to the test itself.

That the test is capable of predicting college success is indicated by the correlation between the scores on one form of the Reading Test and the scores on an objective test (377 points) in College Psychology. This correlation is  $r = .702 \pm .04$ . Other studies indicate that for college students the test predicts general scholastic success about as well or better than the better intelligence test. Brown,<sup>1</sup> for example, found that the correlation between scholastic achievement and the Reading Test significantly exceeded the correlation between scholastic achievement and the best intelligence test that he was able to secure. The authors feel that the care employed in the construction of the test accounts for its superior predictive value as well as for its relatively high reliability.

### Acknowledgments

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- Bullock, Charles J. *Selected Readings in Economics*. Ginn Company.
- Duff, A. Wilmer. *College Physics*. Longmans, Green and Company.
- Jennings, Walter W. *Introduction to American Economic History*. Thomas Y. Crowell Company.
- Kroeger, A. L. *Anthropology*. Harcourt, Brace and Company.
- Semple, Ellen Churchill. *The Influences of Geographic Environment*. Henry Holt and Company.

In each case the selections used have been modified slightly in order to secure uniformity in length.

<sup>1</sup> Brown, A. E. Report of a Study on the Effect of Class Size on the Effectiveness of Instruction. (Not yet published.)



Dark

Documents

- May not  
film well -

Filmed as  
Received

## DIRECTIONS FOR ADMINISTERING

### A. Before Giving the Test

Read each of these directions through carefully:

With a Test Folder and an Answer Booklet follow each of the steps that the student takes as he does the Test. (See No. 6 below.)

### B. How to Give the Test

1. See that each student is supplied with a pencil. Do not permit the use of pens, since the Self-Marking Answer Booklet functions through carbon, and pens will not accomplish the transfer. When the group to be tested is large, it is well to have a generous supply of pencils on hand to be distributed to those students that have come without pencils.
2. Tell the students that the Answer Booklets (which will be handed to them first) are sealed and that under no circumstances are they to open them.
3. Distribute the Answer Booklets and have the students fill in the blanks at the top of the title-page.
4. Ask the students not to open the Test Folders (which will be distributed next) and not to turn them over until directed to do so.
5. Distribute the Test Folders with the title-page up.
6. Ask the students to follow the "Directions to Students" given on the title-page of the Test Folder as you read them aloud. When you get to "C," tell them that they are to follow each step in "a" and "b" just as you read it. See that this is done and that each student has his Test Folder and his Answer Booklet properly adjusted. You can do this by calling their attention specifically to the three arrows and to the fact that each of them should point directly toward another arrow.

Explain that they can make no mistake in this adjustment throughout the test if they follow this single precaution, since the arrows on each page are located in different positions. When the students have turned the title-page, read the remainder of the directions. See that the Answer Booklets are adjusted promptly and give the signal "Begin" just as soon as possible.

7. After exactly 10 minutes say, "Stop."
8. Have the students remove their Answer Booklets from beneath the Test Folder. Read the following directions to them:  
"The next part of the test is a Paragraph Reading Test. At the right of each paragraph are four questions about the paragraph. You are to indicate your answer to the questions by marking in a square just as you did for the Vocabulary Test. When the signal to begin is given, read the first paragraph through and then answer the questions on it. You may look back to the paragraph as often as you need to. Proceed with each paragraph in this same way. You should not puzzle too long over any one question, but pass on to the next one after a reasonable effort. To find your score, count the squares that are marked out, and multiply this number by 2."
9. Have the students turn their Test Folder over and upside down from the way it was, and their Answer Booklet over. Direct them to insert the Answer Booklet between the last two leaves of the Test Folder. Tell them they will have to readjust the Answer Booklet for the last page of the test, lining it up with the Column headed "For Page 4."
10. When they have done this, say, "Attention," (pause) "Begin."
11. After exactly 20 minutes say, "Stop."
12. Collect the Answer Booklets.
13. Collect the Test Folders.

## NORMS

### Senior High School Students

	TENTH GRADE			ELEVENTH GRADE			TWELFTH GRADE		
	Vocab.	Par.	Total	Vocab.	Par.	Total	Vocab.	Par.	Total
1% equal or exceed.....	54	52	106	58	59	116	62	64	125
5% equal or exceed.....	37	42	79	42	46	89	45	48	91
10% equal or exceed.....	30	36	65	34	42	75	40	44	81
15% equal or exceed.....	28	34	60	32	40	70	37	42	76
20% equal or exceed.....	26	32	57	30	38	65	34	40	71
25% equal or exceed.....	23	30	51	26	34	59	30	36	66
30% equal or exceed.....	20	27	47	22	32	54	26	33	60
35% equal or exceed.....	17	24	41	20	28	48	23	30	54
40% equal or exceed.....	15	22	37	17	26	43	20	26	48
45% equal or exceed.....	14	20	35	16	24	41	19	24	45
50% equal or exceed.....	13	18	33	14	22	38	17	22	41
55% equal or exceed.....	10	16	27	11	18	29	14	18	35
60% equal or exceed.....	3	10	16	5	12	17	7	10	22
Number of cases*.....	937	937	937	1703	1703	1703	734	734	734

### College and University Students

	FRESHMEN			SOPHOMORES			JUNIORS			SENIORS		
	Vocab.	Par.	Total	Vocab.	Par.	Total	Vocab.	Par.	Total	Vocab.	Par.	Total
1% equal or exceed.....	72	64	129	77	66	138	86	68	150	89	70	150
5% equal or exceed.....	53	52	100	65	56	117	68	60	124	72	62	131
10% equal or exceed.....	45	46	91	57	52	107	61	56	112	64	56	114
15% equal or exceed.....	43	44	87	54	50	103	59	54	108	61	54	112
20% equal or exceed.....	40	42	82	52	48	100	56	52	104	59	52	109
25% equal or exceed.....	36	40	76	49	46	94	51	48	98	55	48	101
30% equal or exceed.....	32	38	70	44	42	88	48	44	92	50	44	96
35% equal or exceed.....	29	34	63	41	40	83	44	40	84	45	42	88
40% equal or exceed.....	26	30	58	38	36	77	40	38	78	41	40	80
45% equal or exceed.....	25	28	55	36	34	73	37	34	75	39	36	78
50% equal or exceed.....	23	26	51	34	32	69	34	32	71	36	32	71
55% equal or exceed.....	18	24	42	27	28	61	27	28	61	29	28	60
60% equal or exceed.....	12	14	34	15	16	38	17	16	41	19	18	41
Number of cases.....	3364	3364	3364	519	519	519	570	570	570	407	407	407

\* Revised standard scores will be supplied by the authors as a larger number of cases become available. The address of the authors appears in connection with the title of the test.



## PARAGRAPH TEST (beginning)

Wait for the signal to begin

## I

The night was cloudy, and a drizzling rain, which fell without intermission, added to the obscurity. Steadily, and as noiselessly as possible, the Spaniards held their way along the main street, which had so lately resounded to the tumult of battle. All was now hushed in silence; they were only reminded of the past by the occasional presence of some solitary corpse, or a dark heap of the slain, which too plainly told where the strife had been hottest. As they passed along the lanes and alleys which opened into the great street, they easily fancied they discerned the shadowy forms of their foe lurking in ambush, ready to spring upon them. But it was only fancy; the city slept undisturbed even by the prolonged echoes of the tramp of the horses, and the hoarse rumbling of the artillery and baggage trains. At length, a lighter space beyond the dusky line of buildings showed the van of the army that it was emerging on the open causeway. They might well have congratulated themselves on having thus escaped the dangers of an assault in the city itself, and that a brief time would place them in comparative safety on the opposite shore.

## II

The government of Henry the Seventh, of his son, and of his grandchildren was, on the whole, more arbitrary than that of the Plantagenets. Personal character may in some degree explain the difference; for courage and force of will were common to all the men and women of the House of Tudor. They exercised their power during a period of one hundred and twenty years, always with vigour, often with violence, sometimes with cruelty. They occasionally invaded the rights of the subject, occasionally exacted taxes under the name of loans and gifts, and occasionally dispensed with penal statutes; Nay, though they never presumed to enact any permanent law by their own authority, they occasionally took upon themselves, when Parliament was not sitting, to meet temporary exigencies by temporary edicts. It was, however, impossible for the Tudors to carry oppression beyond a certain point, for they had no armed force, and they were surrounded by armed people. Their palace was guarded by a few domestics, whom the array of a single shire, or of a single ward of London, could with ease have overpowered. These haughty princes were therefore under a restraint stronger than any which mere law can impose.

## III

The poet, in shabby finery, holding a manuscript, was earnestly endeavoring to persuade the club to hear him read a poem which he had composed. But against this all the members warmly objected. They insisted, that the law should be observed where reading in company was expressly noticed. It was in vain that the poet pleaded the peculiar merit of his piece; he spoke to an assembly insensible to all his remonstrances: the book of laws was opened, and read by the secretary, where it was expressly enacted, "That whatsoever poet, speech-maker, critic, or historian should presume to engage the company by reading his own works, he was to lay down six-pence previous to opening the manuscript, and should be charged one shilling an hour while he continued reading: the said shilling to be equally distributed among the company as a recompense for their trouble." Our poet seemed at first to shrink at the penalty, hesitating for some time whether he should deposit the fine, or shut up the poem; but looking round, and perceiving two strangers in the room, his love of fame outweighed his prudence, and, laying down the sum by law established, he insisted on his prerogative.

## I

1. What activity is described in the paragraph? 1. A surprise attack. 2. A spying party. 3. A night march. 4. Capture of a city. 5. A midnight execution.
2. What did the soldiers see in their imagination? 1. Their homes in Spain. 2. Hidden enemies. 3. Ghosts of the slain. 4. Horses. 5. Dark buildings.
3. What cause for congratulation did the soldiers have? 1. A renowned leader. 2. Good horses. 3. Enemy sentinels were asleep. 4. Artillery and baggage were saved. 5. They emerged from the city unmolested.
4. What kind of night was it? 1. Freezing. 2. Hot and sultry. 3. Raining steadily. 4. Calm and still. 5. Frosty, starlight.

## II

1. With whom is the paragraph chiefly concerned? 1. The Tudor Kings. 2. The Plantagenet Kings. 3. The palace guards. 4. The London populace. 5. The English people.
2. How were new laws secured when Parliament was not sitting? 1. They were made by a single London ward. 2. Old laws were revived. 3. They were made by the army. 4. The King issued an edict. 5. They were made by the Prince's council.
3. Under what guise were taxes sometimes collected? 1. Fines. 2. Loans. 3. Tariffs. 4. Commissions. 5. Sale of public offices.
4. What personal trait was always displayed by the rule of the dynasty discussed in the paragraph? 1. Cowardice. 2. Deceit. 3. Vigour. 4. Vacillation. 5. Forbearance.

## III

1. What was the subject of the argument? 1. Amending the book of laws. 2. Presence of two strangers. 3. Suspending a fine. 4. Reading a poem. 5. The quality of a poem.
2. What did the club laws forbid? 1. Excessive fines. 2. Distributing money to individuals. 3. Reading to the club. 4. Reading one's writings to the club without paying a fine. 5. Reading a piece of peculiar merit.
3. What was the poet's financial condition or attitude towards money? 1. Poor and saving. 2. Well supplied with money. 3. Reckless with money. 4. Despised money. 5. Money no concern.
4. By what was the poet most swayed? 1. Sense of justice. 2. Desire to better humanity. 3. Love of money. 4. Love of fame. 5. Stage fright.

Without waiting for directions continue this same test on Page 5.—Turn this page just as before.



## PARAGRAPH TEST (cont'd)

Move Answer Booklet over to the column headed "For Page 5." Be sure the arrows point toward each other.

## IV

The countries of the temperate zone are especially fit for the development of manufacturing industry; for the temperate zone is the region of intellectual and physical effort. If the countries of the torrid zone are little favored in reference to manufactures, they possess, on the other hand, the natural monopoly of many precious commodities which the inhabitants of the temperate climates greatly prize. A country of the torrid zone would make a very fatal mistake should it try to become a manufacturing country. Having received no invitation to that vocation from nature, it will progress more rapidly in riches and civilization if it continues to exchange its agricultural productions for the manufactured products of the temperate zone. It is true that tropical countries sink thus into dependence upon those of the temperate zone, but that dependence will not be without compensation if competition arises among the nations of temperate climes in their manufacturing industry, in their trade with the former, and in their exercise of political power. This competition not only insures a full supply of manufactures at low prices, but will prevent any one nation from taking advantage of its superiority over the weaker nations of the torrid zone.

## V

Man grew in the temperate zone, was born in the Tropics. That first crude human product of Nature's Pliocene workshop turned out in the steaming lowland of Java, and now known to us as the *Pithecanthropus erectus*, found about him the climatic conditions generally conceded to have been necessary for man in his helpless, futile infancy. Where man has remained in the Tropics, with few exceptions he has suffered arrested development. His nursery has kept him a child. Though his initial progress depended upon the gifts which Nature put into his hands, his later evolution depended far more upon the powers which she developed within him. These have no limit, so far as our experience shows; but their growth is painful, reluctant. Therefore they develop only where Nature subjects man to compulsion, forces him to earn his daily bread, and thereby something more than bread. This compulsion is found in less luxurious but more salutary geographic conditions than the Tropics afford, in an environment that exacts a tribute of labor and invention in return for the boon of life, but offers a reward certain and generous enough to insure the accumulation of wealth which marks the beginning of civilization.

## IV

1. What is the writer's attitude toward developing manufacturing in the torrid zone? 1. Nations of the temperate zone should encourage it. 2. The torrid zone should remain an agricultural land. 3. Private concerns should supply capital for developing manufacturing. 4. Manufacturing in the torrid zone means dependence. 5. Competition renders manufacturing there necessary.
2. Why is there so much manufacturing in the temperate zone? 1. Because of its trading with the torrid zone. 2. Because the torrid zone has a monopoly of many commodities. 3. Because its governments are superior to those in the tropics. 4. Because its people possess great industry. 5. Because of vast capital.
3. What compensation does the torrid zone have for its lack of manufacturing? 1. Articles greatly desired by the temperate zone. 2. Pleasure resorts. 3. A large commerce. 4. It is a region of intellectual and physical effort. 5. More political freedom.
4. What policy should a tropical country pursue in order to foster its development and civilization? 1. Build up its manufacturing. 2. Increase its number of ships. 3. Trade its farm products for manufactured wares. 4. Establish a stable form of government. 5. Foster intellectual and physical effort in its people.

## V

1. The climate believed most conducive to later human evolution is: 1. The Tropics. 2. The far North. 3. The Temperate Zone. 4. Java. 5. Pliocene.
2. What does the author think about the possibilities of human development? 1. They are very limited. 2. Development occurs most readily in the Tropics. 3. It is futile to expect development. 4. It is fully arrested. 5. There are no limits.
3. Under what conditions does man reach the highest degree of civilization? 1. Where his wants are supplied by Nature. 2. Where he is compelled to work for food. 3. Where all of man's time is necessarily devoted to food-getting. 4. Where nature is most prodigal. 5. Where vegetation is luxurious.
4. What does the author believe to be an indication of the initial stages of civilization? 1. The amassing of a surplus over one's immediate needs. 2. Migration from the Tropics. 3. The beginning of the Pliocene Era. 4. Painful, reluctant growth. 5. Salutary geographic conditions.



## PARAGRAPH TEST (cont'd)

Move Answer Booklet over to the column headed "For Page 6." Be sure the arrows point toward each other.

## VI

On one hand, the masses of the people in this country are preparing to take a much more active part than formerly in controlling its destinies; on the other hand, the aristocracy, using this word in the widest sense, to include not only the nobility, but also those reinforcements from the classes bordering upon itself, which this class constantly attracts and assimilates, while it is threatened with losing its hold on the rudder of government, its power to give to public affairs its own bias and direction, is losing also that influence on the spirit and character of the people which it long exercised. This will be warmly denied by some persons. Those who have grown up amidst a certain state of things, those whose habits, and interests, and affections, are closely concerned with its continuance, are slow to believe that it is not a part of the order of nature, or that it can ever come to an end. But what is here laid down, will not appear doubtful either to the most competent and friendly foreign observers of this country, or to those Englishmen who have applied themselves to see the tendencies of their nation as they are.

## VI

1. What does the author think about the power of the aristocracy? It is 1. More actively in control. 2. Gaining power. 3. Entirely lost. 4. Gradually diminishing. 5. Entrenched.
2. Who are the slowest to realize the change which is taking place? 1. The masses. 2. Foreign observers. 3. The aristocrats. 4. Government officials. 5. Students.
3. What other class does the author link with the nobility? 1. The masses. 2. Competent foreigners. 3. The educated. 4. The studious. 5. The upper middle class.
4. The author compares his own views with those held by: 1. The masses. 2. Able and kind foreigners. 3. The aristocracy. 4. The middle class. 5. The nobility.

## VII

The only banking system in which a guaranty-fund provision is actually incorporated at the present time is that of Canada. According to the terms of the banking law of 1890, the notes of the bank are made a first charge upon all the assets of the issuing bank; also each stockholder may be forced to contribute his shares and a like amount in cash. In addition to this, banks are required to keep on deposit with the Minister of Finance a sum equal to 5 per cent of the average amount of their notes outstanding during the fiscal year preceding. In case of the suspension of any bank, its notes outstanding draw interest at 6 per cent from the date of suspension until the date set for their redemption. If such a day is not fixed by the directors of the defunct bank within two months from suspension, the Minister of Finance is authorized to appoint a date upon and after which they will be redeemed from the redemption fund. Until the fund is made good from the assets of the failed bank, all the banks of the system are required to contribute in their due proportion at a rate not exceeding 1 per cent on their circulation each year.

## VII

1. What results in case the assets of a failed Canadian bank are not sufficient to redeem its outstanding notes? 1. The notes are paid as presented as long as the assets last. 2. All note-holders suffer a pro rata loss. 3. The Canadian Government makes good the loss. 4. Other Canadian banks make good the loss. 5. The bank's directors make the loss good.
2. In case the officials of a failed bank do not set a date for redeeming its notes, how is such a date established? 1. The Minister of Finance appoints the date. 2. The date is set by law as two months after suspension. 3. The stockholders fix a date. 4. The creditors fix a date after two months. 5. There is no provision for specifying a date.
3. What is the largest amount a stockholder of a failed bank can be forced to contribute? 1. Five per cent of his shares. 2. An amount fixed by the directors. 3. An amount fixed by the Minister of Finance. 4. His shares plus their face value in cash. 5. To the full extent of his assets.
4. Why are banks required to keep a sum on deposit with the Minister of Finance? 1. As insurance on their assets. 2. To protect holders of their notes. 3. To guarantee a 6 per cent rate of interest. 4. To assist banks that may fail. 5. To protect stockholders of the bank.

Without waiting for directions continue this same test on Page 7. Turn this page just as before.



Move Answer Booklet over to the column headed "For Page 7." Be sure the arrows point toward each other.

VIII

Assuming that the physical and moral well-being and the stable social order, which are the indispensable conditions of permanent industrial development, are secured, there remains for consideration the means of attaining that knowledge and skill, without which the battle of competition cannot be successfully fought. A vast system of elementary education has now been in operation among us for sixteen years, and has reached all but a very small fraction of the population. I do not think that there is any room for doubt that, on the whole, it has worked well, and that its benefits have been immense. But, as might be expected, it exhibits the defects of all our educational systems — fashioned as they were to meet the wants of a bygone condition of society. There is a widespread and I think well justified complaint that it has too much to do with books and too little to do with things. I am not disposed to make the primary school a mere annex of the shop. It is not so much in the interests of industry as in that of broad culture that I echo the common complaint against the bookish and theoretical character of our primary instruction.

VIII

1. How many of the people are reached by the present system of elementary education? 1. Almost all. 2. A very few. 3. About half. 4. About one in sixteen. 5. Everyone.
2. What criticism is made of the present school system? It is: 1. Too old. 2. Limited to a few. 3. Too much like a shop. 4. Too much concerned with books. 5. Too widespread.
3. What does the author seem to consider the chief function of the school? To provide for: 1. Help to industry. 2. Theoretical reasoning. 3. General refinement. 4. Universal education. 5. Bookish training.
4. What is cited as one of the basic conditions necessary for permanent industrial development? 1. Universal education. 2. Industrial education. 3. Primary education. 4. Proper educational theory. 5. Established society.

IX

A complex device read in two or more parts of the world suggests a connection between them in very proportion to its complexity. A combination of two or even three elements might conceivably have been repeated independently. A combination of five or even ten parts serving an identical purpose in an identical manner must necessarily appeal as impossible of having been hit upon more than once. One thinks almost under compulsion, in such a case, of historical connection, of a transference of the idea or machine from one people to the other. If the resemblance includes any inessential or arbitrary parts, such as an ornament, a proportion that so far as utility is concerned might be considerably varied but is not, a randomly chosen number, or a name, the possibility of independent development is wholly ruled out. Such extrinsic features would not recur together once in a million times. Their association forces an assumption of common origin, even though it be difficult to account for the historical connection involved. Therefore, in the degree that the form as well as the substance of such culture traits coincide, does the probability of an independent evolution diminish in favor of some sort of historical connection.

IX

1. If two tribes living in widely separated parts of the earth each possess a similar tool having several identical elements, what conclusion could safely be drawn respecting the past of these tribes? 1. Each tribe has had a great inventor. 2. They are in very similar stages of civilization. 3. There has been a connection of some sort between the two tribes. 4. They use languages closely related. 5. They have had no relationship.
2. The probability of the independent evolution of two tribes is diminished if: 1. Each tribe has ornamental devices. 2. Each possesses a very similar tool having identical arbitrary parts. 3. Each possesses a tool having extrinsic features. 4. Each possesses a tool having inessential parts. 5. Each has developed complex machines.
3. The probability of separate evolution of two tribes is completely overthrown if the two tribes are using similar machines that are: 1. Complex devices. 2. Alike with respect to use. 3. Highly decorated. 4. Identical in inessential parts. 5. Used in many parts of the world.
4. What conclusion is drawn if two tribes each possess a machine bearing an identical number selected by chance? 1. Historical connection is firmly established. 2. Independent development is quite possible. 3. The number is regarded as an ornament. 4. Separate evolution is confirmed. 5. There is but small likelihood of transference of ideas.



## Appendix B

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